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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/501,225	02/04/2005	Joannes Leonard Linden	310.1040	3797

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LUCAS & MERCANTI, LLP
475 PARK AVENUE SOUTH
15TH FLOOR
NEW YORK, NY 10016

EXAMINER	
LIGHTFOOT, ELENA TSOY	
ART UNIT	**PAPER NUMBER**
1792	

NOTIFICATION DATE	DELIVERY MODE
10/01/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

info@lmiplaw.com

Office Action Summary	Application No.	Applicant(s)	
	10/501,225	LINDEN ET AL.	
	Examiner	Art Unit	
	Elena Tsoy Lightfoot	1792	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 August 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-5 and 8-33* is/are pending in the application.

4a) Of the above claim(s) *11,13-16 and 23-33* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-5,8-10,12 and 17-22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *12 July 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on August 27, 2009 has been entered.

Response to Amendment

Amendment filed on August 27, 2009 has been entered. Claims 2, and 6-7 have been cancelled. New claims 32 and 33 have been added. Claims 1, 3-5, 8-33 are pending in the application. Claims 11, 13-16 and 23-31 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention and species.

Election/Restrictions

1. Newly submitted claims 32-33 are directed to inventions of *non-elected* claims 23-24.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 32-33 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Specification

2. The disclosure is objected to because of the following informalities: "mbara" should be changed to a more conventional "mbar". Appropriate correction is required.

Claim Objections

3. Claims 18-19 are objected to because of the following informalities: "mbara" should be changed to a more conventional "mbar". Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Rejection of claims 1, 3-5, 8-10, 12 and 17-22 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention has been withdrawn due to amendment.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Rejection of claims 1, 3-5, 8-10, 12, and 17-22 under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Yamada et al (US 5024927) has been withdrawn due to amendment.

9. Claims 1, 3-5, 8-10, 12, and 17-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamada et al '927 in view of Saito et al (US 5021114).

Yamada et al discloses a method for applying a film of a *carbon-based* material (claimed organic component) in which finely-divided metallic particles having particle size of 50 nm or less, preferably 30 nm or less (claimed inorganic component comprising nanoparticles) (See column 11, lines 48-50) are *dispersed* (claimed hybrid coating) can be formed by ***any*** one of the known methods such as *co-vapor* deposition, and *plasma* CVD of an organic material and halogenated metallic compound ((See column 11, lines 36-45).

As to high-frequency pulsed plasma, Yamada et al teaches that a film can be prepared by a direct current glow discharge decomposition method or an *alternate* current glow discharge (claimed **pulsed** plasma) decomposition method (See column 7, lines 22-25) using RF plasma of up to 50 MHz, e.g. 13.56 MHz (claimed high-frequency plasma (See column 7, lines 26-32).

As to two or more plasma sources, Yamada et al fails to teach that the precursors for organic and inorganic component are activated in two or more plasma sources (Claim 1).

Saito et al teaches that the reactant gases can be activated *independent of each other* by the separate plasmas and supplied uniformly to the substrate with high efficiency, whereby the film of high quality can be formed uniformly at an increased speed (See column 16, line 67 to column 17, line 3). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have activated precursors for organic and inorganic component

in Yamada et al *independent of each other* by the separate plasmas and supplied uniformly to the substrate with high efficiency with the expectation of providing the desired uniform film of high quality at an increased speed, as taught by Saito et al, since Yamada et al does not limit its teaching to particular *co-vapor* deposition methods.

As to high density plasma, Saito et al teaches that a **high-density** plasma of a large volume can be produced within the activating chamber 31, as the result of which activated reactive gas of high concentration can be produced and transported uniformly toward the substrate 5 (specimen to be treated) over a short distance while maintaining the high concentration to undergo reaction at a significantly increased rate with the reactive gas activated by the plasma produced above the substrate 5. In this way, film formation can be accomplished at high speed without incurring any deterioration in the film quality (See column 15, lines 8-24).

As to claims 3-4, 21-22, Saito et al teaches that difficult to activate precursor is activated by plasma in a chamber 31, and easy to activate precursor is activated by plasma in a chamber 1a close to the substrate such that the difficult to activate precursor that is activated by plasma in a chamber 31 passes the plasma for activation of the other precursor (See Fig. 13, column 14, line 34 to column 15, line 7).

It is the Examiner's position that difficult to activate precursor may include a precursor for either organic or inorganic component depending on particular application.

As to claim 8, Saito et al teaches that the easy to activate reactant may be activated at low density by high-frequency plasma (See column 15, lines 39-58).

As to claims 10, 12, 17, Yamada et al teaches that the organic matrix and finely-divided metallic particles are simultaneously prepared from organic metallic compound as a precursor for

inorganic component and as a precursor for organic component (See column 6, lines 41-47). Examples of such an organic metallic compound include organo*aluminum* compounds such as trimethyl aluminum, triethyl aluminum and triisobutyl aluminum, organosilane compounds such as tetramethyl silane, tetraethyl silane, tetrapropyl silane and tetrabutyl silane, organo*tin* compounds such as tetramethyl tin, tetraethyl tin, tetrapropyl tin and tetrabutyl tin and organo*zinc* compounds such as dimethyl zinc and diethyl zinc (See column 6, line 48 to column 7, line 14). In addition, halogenated organometallic compounds can also be employed, which are prepared by substituting some or all hydrogen atoms of the above-described organometallic compounds with halogen atoms such as fluorine atoms, chlorine atoms, bromine atoms or iodine atoms (See column 7, lines 15-21).

As to claims 18-19, Yamada et al teaches that teaction pressure is 0.001 to 10 Torr (mbar), preferably 0.003 to 2 Torr (mbar) (See column 7, lines 34-35).

As to claim 20, the plasmas are formed by bringing a mixture of precursor material, argon gas and optionally oxygen (See column 6, lines 34-36) to electrical discharge (See column 7, lines 21-26).

Response to Arguments

10. Applicant's arguments with respect to claims 1, 3-5, 8-10, 12, and 17-22 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elena Tsoy Lightfoot whose telephone number is 571-272-1429. The examiner can normally be reached on Monday-Friday, 9:00AM - 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on 571-272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Elena Tsoy Lightfoot, Ph.D.
Primary Examiner
Art Unit 1792

September 29, 2009

/Elena Tsoy Lightfoot/